

CS 122A Project Description:-

Video:- Available upon request!

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Summary:- This project works like the mini e-commerce website. This is a software only project completed in C++. Some of the topics we have learned in the class have been used in order for it to correlate with embedded systems. Three topics I have included in the project are State Machines, Troubleshooting and Pattern recognition.

Menu:- Program starts with displaying the menu of all the items the user can purchase. And from here users will have a choice to pick which item they want to get by pressing the appropriate number between 1 to 7.

```
Welcome to small E-commerce website!
Please press the number based on the item you would like to purchase.
Numbers 1-3 are for PROGRAMMING BOOKS
Numbers 4-5 are for ELECTRONIC PRODUCTS
Numbers 6-7 are for FRUIT(S)

AVALAIBLE PROGRAMMING BOOKS:
1. JAVA
2. C
3. C++

AVAILABLE ELECTRONIC PRODUCTS:
4. LIGHT - BULB
5. USB CAR-CHARGER

AVAILABLE FRUITS:
6. FRUIT- APPLE (REGULAR)
7. CUSTMIZE APPLE

Enter number to purchase:-
```

State machines:- There are seven states in the program. Each state represents the name of the item the user can purchase. For example, the first three states represent the three programming books users can purchase. Books are Java, C and C++ programming.

```
enum ECOM{PROGRAMMING_JAVA = 1, PROGRAMMING_C, PROGRAMMING_CPLUSPLUS, TECH_ONE, TECH_TWO, FRUIT_ONE, FRUIT_TWO,};
```

As we can see from the above picture that when the user enters number 1 program will enter in the first case and will ask if the user wants to buy the JAVA book or not. Depending on the answer provided by the user book will be purchased or will take the user to main menu.

```
Enter number to purchase:-  
1  
Please wait..  
Price for this book is $49  
Please confirm you want to purchase JAVA Book  
Y  
JAVA BOOK will be purchased  
Please wait 5 seconds for the order to be processed  
PURCHASE COMPLETED!
```

```
| sleep(2);
```

I have used the sleep(2) function after the please wait... statement and after the statement that reads 5 seconds, only to make this look like an actual environment. Similar patterns are followed by other two books C and C++ so this is not shown here.

Troubleshooting:- Troubleshooting was another topic taught during the class. I felt like this would be a great thing to include in the e-commerce website for electronic products. This corresponds to case 4 and case 5 from the code. Case 4 is purchasing light-bulb and case 5 is the USB car charger.

Case 3:- Once the user finishes the purchase, they will be asked whether they need help troubleshooting (Assuming user has already received the product). If the answer is yes, then troubleshooting will start by an AI, to ask the user some questions. And depending on the answers, the product will be replaced if the solution is found.

```

Enter number to purchase:-
4
Please wait...
BULB will be purchased
Please wait 3 seconds for the order to be processed
PURCHASE COMPLETED

Would you like to troubleshoot?
y
NOTE: Troubleshoot will be performed by AI and will ask you to try several things/questions
Let's troubleshoot the bulb
FIRST, let's answer some questions
Did you check if the lamp is properly plugged?
y
Did you make sure that bulb is not broken?
y
Did you insert lamp in the working lamp?
y
Lastly, Did you try putting bulb into another lamp and still nothing happened?
y
Looks like BULB has been damaged!
Would you like us to get new replacement?
y
Okay! Please wait for Replacement bulb to be processed
Replacement successful!
You will get new bulb in few days

```

Case 4:- This case troubleshoot the USB car charger. Instead of simply answering ‘y’ this time I have further advanced the questions like real people are talking. For example, now the user will type ‘n’ and the system will ask the user to complete the step and then make a decision from that.

```

First, Did you check whether the cable is firmly instred in the GPS?
y
Did you check if cable is firmly inserted in USB charger?
y
OKAY! Did you try inserting charger in another 12V outlet Charging?
y
Did you try another charger and still not charging?
y
Did you try the USB charger in another car to see if it works?
n
Please try the charger in another car, and let us know.
okay
Did it work?
n
No problem! Finally, let's inspect the fuse for 12V outlet! Fuse blown?
y
We found the solution. We will replace the blown fuse.
Would you like the replacement?
y
Okay! We will send you replacement! Please wait...
Replacement ordered sucessfully!

```

Pattern Recognition:- This was another topic I thought would be good to include in my project. In the class Prof. showed the video example of a phd student where it would guess what kind of fruit it is by its weight. Since this is software only, I could not do something like that (maybe I

can, I am not sure) so instead I have added a case where if the user do not know what kind of apple they want to buy then the system will ask them couple questions and based on that it will pick the correct apple. Apples have been categorized by brands, colors and their sizes. By answering the questions like size and color system will pick the correct choice.

```
Enter number to purchase:-
7
Sure! Let us pick the best apple for you by answering simple questions!
Question 1: Apples come in sizes between 48-216. Please enter the size of an apple you would like to get:
201
Question 2: Choose a color between green and red apples
red
You have selected LARGEST SIZE OF 201 apple and red color
We have picked Gala Delicious red apples for you
Would you like to purchase it?
y
How many?
3
Your total is 15
THANK YOU FOR SHOPPING!
```

In the program apples between the sizes 48-100 are considered smaller apples, 101-200 are bigger apples and 201-216 can be considered larger apples.

```
Enter number to purchase:-
7
Sure! Let us pick the best apple for you by answering simple questions!
Question 1: Apples come in sizes between 48-216. Please enter the size of an apple you would like to get:
165
Question 2: Choose a color between green and red apples
green
You have selected BIGGER SIZE OF 165 apple and green color

We have picked Granny Smith apples for you
Would you like to purchase it?
y
How many?
5
Your total is 20
```